INDUSTRY, GOVERNMENT, ACADEMIA RESEARCH COOPERATION

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The Great Divide

Industrial
Developers

Academic
Researchers

The Great Bridge

Industrial Developers

Academic Researchers

Quote From John Chilenski

"Academic researchers tend to work on general problems."

- This is true but:
    - General results are likely to be useful
    - Problem constraints are not available to academics

Access To "Real" Problems

- Researchers need:
  - Help with problem statements
  - Access to real system requirements
  - Access to assessment mechanisms for research results:
- But:
  - Almost all corporate materials are proprietary
  - Corporate staff do not have time to help

First Chapter Of A Success Story

- Minimum Safe Altitude Warning System MSAW
- MSAW system configuration data file
- FAA provided:
  - "Laundered" details of file format and use
  - Answers to questions of understanding
- Result at UVA:
  - Approach to formal specification of data
  - Tools to support the approach

Possible Directions

- Development of "grand challenges" to provide community direction
- Examples:
  - Reduce overall MCDC test time for a specimen application by order of magnitude—what are the details of doing this?
  - Develop an alternative to MCDC for practical certification
  - Formally verify an implementation of a specimen application against a formal specification

Possible Directions

- Establish academic points of contact:
  - List of people to call to ask about research in specific technical areas
  - NOT a document or web site
- Industry provide specimen application artifacts:
  - Complete product requirements
  - Complete product implementation
  - Complete product test plans

Possible Directions

- Specimen data sets
- Focus workshops for information exchange:
    - Practitioners discuss projects
    - Researchers discuss results
    - Possible topics:
        - Requirements engineering
        - Object-oriented technology
- Regular parties at which all conferences exchange information. How many academics are here?

Questions For Discussion

- Academic:
    - How do I get access to industry product information?
    - How do I get industry to cooperate with me on problem definitions?
    - How do I get industry to evaluate the research results I generate?
- Government:
    - How useful is NASA's research discussion at this meeting?
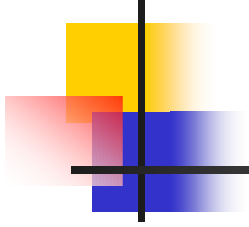- Industry:
    - …

Things We Seem To Need

- More efficient mechanisms for coverage assessment

- Technique to determine completeness of requirements

- Better answers on issues raised by OOT

- Etc.

Discussion